DOCUMENT RESUME

ED 305 918 IR 013 777

AUTHOR Beaver, John F.
TITLE Profiles in Excellence: An Examination of High Quality Elementary School Instructional Computing Programs.
PUB DATE 89
NOTE 9p.; Paper presented at the Annual Conference of the Eastern Educational Research Association (Savannah, GA, February 21-24, 1989).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Budgets; *Computer Assisted Instruction; Computer Software; Demonstration Programs; Elementary Education; *Elementary Schools; Microcomputers; National Surveys; *Program Development; *Resource Allocation; Scheduling; School Surveys

ABSTRACT

A study was conducted during the fall of 1987 which examined aspects of successful elementary school instructional computing programs. The results show school leaders the approaches adopted by decision makers in a national sample of elementary schools identified for the excellence of their instructional computing programs. Significant findings include budgetary issues, computer allocation time, planning considerations and computer usage. The most striking budgetary findings suggest a major decline in instructional computing expenditures compared with previous years. Expenditures are dominated by hardware purchases; in the 1987 budgets, 73% of the funds were spent on hardware, whereas only 15% were devoted to software purchase. In addition, the study revealed a noteworthy shift in the way that leaders intend to allocate their available computer time in the future. Cooperative planning was undertaken by committees comprised mainly of principals and classroom teachers. The most critical contributors to program development were mainly equipment-oriented; the most significant barriers to program development were people-oriented. Apple IIe's were overwhelmingly the computers of choice and word processing was rated the most valuable instructional computing use. (3 references) (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED305918

PROFILES IN EXCELLENCE: AN EXAMINATION OF HIGH QUALITY ELEMENTARY SCHOOL INSTRUCTIONAL COMPUTING PROGRAMS

by

Dr. John F. Beaver

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

John F. Beaver

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

A study was conducted during the fall of 1987 which examined aspects of successful elementary school instructional computing programs. The results show school leaders the approaches adopted by decision-makers in a national sample of elementary schools identified for the excellence of their instructional computing programs. Significant findings include budgetary issues, computer allocation time, planning considerations and computer usage. The most striking budgetary findings of suggest a major decline in instructional computing expenditures compared with previous years. Expenditures are dominated by hardware purchases; in the 1987 budgets, 73% of the funds were spent on hardware whereas only 15% were devoted to software purchase. In addition, the study revealed a noteworthy shift in the way that leaders intend to allocate their available computer time in the future. Cooperative planning was undertaken by committees comprised mainly of principals and classroom teachers. The most critical contributors to program development were mainly equipment-oriented; the most significant barriers to program development were more people-oriented. Apple IIes were overwhelmingly the computers of choice and word processing was rated the most valuable instructional computing use

IR013777

INTRODUCTION

Computers have been used in schools for enough years now that some of their novelty has worn off. The public demand for technology in the classroom has subsided and been replaced by increased awareness of other, perhaps more pressing, issues. As a result, financial support for educational computer use has declined. Although no one could argue with educational programs which address teen suicide or drug abuse, individuals interested in advancing the instructional use of computers are convinced that the seriousness of these topics should not remove the funding support for instructional computing. By examining the programs of successful instructional computing practitioners and by reporting their methods, advocates of educational technology can advance their cause and provide the guidance for others.

The 1987-88 study investigated characteristics of elementary school instructional computing programs selected for their high quality, dentifying common aspects of the fine programs. The commonalties can guide instructional leaders and increase understanding of the processes used to develop and maintain successful elementary school instructional computing programs. The opinions of leaders whose programs are recognized for their quality can be useful to all school administrators. However, the opinions are especially important for leaders seeking advice on how to provide their schools with the best possible instructional computing program with only limited resources.

OUTLINE OF THE STUDY

A national search identified 73 elementary schools with high quality instructional computing programs. The Office of Technical Assessment (OTA) in Washington, D.C., supplied a list of districts known for their support of instructional technology. Representatives from these districts then identified the particular elementary schools within their areas which they believed had developed the most outstanding instructional computing programs. These schools were surveyed with a 70% response rate.

The survey instrument was designed to gather data on the following topics: various budgetary considerations, allocation of available computer time, school planning process characteristics, time periods for which schools have had instructional computing programs, the extent of staff involvement, and important barriers and contributors to instructional computer program improvement. The instrument additionally identified the type and location of the computers within the schools, the computer uses considered the most important in facilitating student learning, and the effects of program longevity on instructional computing practices.

FINDINGS

An alarming drop in budgetary expenses was, perhaps, the study's most notable finding. The first declines detected were from the average expenditures for the years the programs were developed to the 1986 budgets. Further declines were noted from the 1986 budgets to the 1987 budget levels. The median for the average annual expenses (incurred while

programs were being established) was $20.00; for 1986, the median was $8.80; for 1987, the median dipped to $4.90. Thus, after five years (on average) of nearly $20 per student annual expense to develop its program, the typical school expense dropped to less than $5 per student by 1987. These per student budgetary amounts are quite different from the figures supplied by Moursund and Ricketts (1987).[1]

The mean 1987 per student budgetary figure indicated that 73% was spent on hardware, 15% on software, 9% on staff development and 3% on equipment maintenance. Therefore, the $4.90 per student was divided so that $3.57 was spent on hardware, $0.74 went to software, $0.44 was spent on staff development, and $0.15 on equipment maintenance. These findings differ from those reported by Levin (1986).[2] The study also found that computer expenses are not permanent line items in the budgets of over 70% of the schools surveyed.

Another important finding involved the division of allocated computer access time. Taylor's three categories of educational computer usage were employed to stratify the available time.[3] The total available time was mainly allocated to computer-assisted learning (55%) and computer applications (29%), with less time (14%) given to computer programming in either Logo or B.A.S.I.C. or both. The three specific activities with the highest frequency of occurrence--drill and practice (24%), word processing (18%), and tutorials (12%)--accounted for more than half of the total access time.

However, the study revealed a major shift in the respondents' ideal allocation of computer time. Nearly one half of the respondents would spend

50% or more of their computer time on computer applications, up from the less than one quarter that actually spent that amount of time on computer applications. Overall, the ideal computer time allocations showed a lesser emphasis on computer-assisted learning and a correspondingly greater emphasis on computer applications.

Findings involving the type and location of the computers, the level of staff involvement in instructional computing, the characteristics of the schools' planning processes, and the instructional computer uses most highly regarded by school leaders also proved interesting. The computers, overwhelmingly Apple IIes (87% of the total), were situated in both computer labs and individual classrooms in nearly 90% of the schools. Planning generally involved shared decision-making processes using computer committees composed primarily of classroom teachers, computer enthusiasts, and building principals. The typical elementary teaching staff was highly involved--often 100%--in the instructional computing program. School leaders recognized word processing (55%) as their most highly valued method of using computers with students, with improving basic skills (27%), individualizing instruction (18%), enriching the extant curriculum (18%), and keyboarding (16%) also often mentioned as valuable.

Other notable results include the factors which were identified as significant contributors or barriers to program development in the past ("3 years ago"), present, and future ("in 3 years time"). Five factors were identified as the most important contributors to computing program improvement over the last six years. Adequate hardware was the most vital contributor in both the past and the present. Adequate software was recognized as the most

consistently important contributor and, also, the most significant contributor in the future. The other three important contributors were administrative support, the willingness of teachers to change, and staff inservice programs.

The most significant barriers in the past were inadequate staff training, lack of quality software, insufficient hardware, and lack of staff commitment. Teachers resisting change was the most significant barrier in the present and future as well as the most consistent impediment over all three time periods. Interestingly, the factors considered the most significant barriers to program development were primarily people-oriented whereas the factors identified as most important contributors to instructional computing program development were primarily equipment-oriented.

Computing programs which had been established for some years differed substantially from more newly established programs in every characteristic examined--equipment availability, budgetary considerations, the number of years for which plans have been made, the extent of teaching staff involvement, and the actual and ideal allocation of computer access time. The more established programs have developed plans covering longer periods of time and typically have permanent budget line items to ensure the funds needed to implement the plans. The established programs involve a greater number of teachers in their programs and provide a greater ratio of computers to both teachers and students. They also place far greater emphasis on computer applications than on computer programming or computer-assisted learning, devoting 67% more time to computer applications and 28% less time to computer-assisted learning than those schools with relatively newer programs.

SUMMARY AND IMPLICATIONS

These results have implications for educational leaders at the building, district, and state levels as well as for educational researchers. The findings offer guidelines to assist the decision-making processes of the nation's elementary schools presently developing their instructional computing programs. The different manner in which the more established schools allocate their computer time offers a strong message to educators who are uncertain about which computer modes to emphasize in their programs. The leaders should combine an awareness of the importance of computer applications with careful long-term planning. The plans must include increased opportunities for teacher training and for staff involvement in the planning processes used to determine future directions of the instructional computing programs.

The findings also warrant more detailed investigations into the factors which might be influenced by an instructional computing program's relative maturity. The findings also raise questions concerning the respondents' projected computer time allocations. The projected computer time allocations, with greater emphasis on computer applications, will require more hardware and teacher training than present utilization modes. For the projections to be actualized, spending on instructional computing must be increased. This necessity is one of several revealed by the study which are contrary to the practices reported by the respondents. These disparities have serious implications for the future success of instructional computing. Educational leaders and legislators must work together to provide the

funding necessary to guarantee that the power of computers is available to all students.

REFERENCES

1. Moursund, Dave & Ricketts, D. Long-Range Planning for Computers in Schools. Eugene, Oregon: Information Age Press. 1987.

2. Levin, H. M. Cost-effectiveness of computer-assisted instruction: Some insights. Stanford, CA: Stanford Educational Policy Institute Report. September, 1986.

3. Taylor, Robert, Ed. The Computer in the School: Tool, Tutor, Tutee. New York: Teachers College Press. 1980.